4. (Twice Amended) A method according to claim 3, wherein the vegetable material is fiberized by means of a pulp or paper mill refiner.

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5. (Twice Amended) A method according to claim 1, wherein the fiber fraction is separated from the juice stream by screening, centrifugation, processing by cyclone, hydrocyclone, centriscreening, decanting, sedimentation, or combinations thereof.

REMARKS

Claims 1, 4 and 5 have been amended. As such, Claims 1-8 and 16-18 are currently pending and being considered by the Examiner.

A. Amendments:

Claim 1 has been amended to now recite that it is directed to a method for separating cytosolic and parenchyma components from vegetable material. The method includes fiberizing the vegetable material to substantially open all cell walls and then separating the fiberized material into a fiber fraction and a juice stream. The fiber fraction includes substantially all fibrous materials and cell walls and the juice stream includes substantially all cytosolic materials and parenchyma. Support for amended Claim 1 can be found throughout the specification and more specifically at page 13, line 19 through page 14, line 6. No new matter had been added.

Claim 4 has been amended to recite that the vegetable material can be fiberized using a pulp or paper mill refiner. Support for amended Claim 4 can be found at page 13, lines 11-19.

Claim 5 has been amended to clarify that hydro(cyclone) refers to a cyclone or hydrocyclone.

B. Responses to Rejections:

35 U.S.C. 112 Rejections

On page 2 of the Office Action, Examiner Tate rejected Claims 1-8 and 16-18 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner contends that claim 1 is rendered vague and indefinite by the phrase "a fiber fraction, which comprises relatively firm tissues, and a juice stream, which comprises soft tissues," insofar as "relatively firm" and "soft" are relative terms which are "ambiguous and unclear." The Examiner similarly finds claim 4 to be vague and indefinite by the phrase "wherein the vegetable material is fiberized by means of a refiner." Lastly, the Examiner contends that claim 5 is rendered vague and indefinite by the use of parenthesis in the term "hydro(cyclone)".

As Applicants have amended the claims to remove the objected to language and/or to further define the terms used, it is respectfully submitted that the rejections under 35 U.S.C. §112 are now moot and should be withdrawn.

35 U.S.C. 102(b) Rejection

On page 4 of the Office Action, Examiner Tate has rejected Claims 1-5, 8, and 16 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,332,125 to Holdren (hereinafter "Holdren").

Holdren involves a method of extracting fluid from forage crops in order to expedite the drying and storage of said forage for later use as animal feed, while preserving a substantial portion of its nutritional value. The term fiberization as used by Holdren, refers to ripping or subdividing at least about 75% of the fresh cut forage into fibers having a length of

0.1 to 5 inches. (See col. 4, lines 63-65). This is insufficient to substantially open all cell walls. Significantly, following fiberization, the fiber component in Holdren still retains a moisture content of about 45 to 75% by weight. (See col. 5, lines 52-55). Then, during the drying process, the juices expressed from the plants are sprayed onto the upper surface of the fiber fraction, again with the goal of allowing the water to evaporate while the protein and sugars therein remain on the surface of the fiber fraction. Thus, the basic premise of Holdren is simply to extract only sufficient fluid from the plants so as to facilitate the drying process.

Contrary to Holdren, the presently claimed invention contains steps to maximize the recovery of nutrient rich cytosolic contents. After fiberizing the vegetable material, it is separated into a fiber fraction, which contains substantially all fibrous material, and a juice fraction, which contains substantially all cytosolic material. The result is a fiber component containing basically cell wall materials (cellulose and hemicellulose) with no nutritive value. Unlike Holdren, the goal of the invention is to remove virtually all the cytosolic content from the plant cells, leaving essentially only the cell walls. Thereafter, the cytosolic content can be further fractionated into new products, while the fiber fraction, now deprived of virtually all nutrients, can be used for energy production.

Accordingly, as Holdren does not disclose the fiberization step according to the amended claims, it is respectfully requested that the rejections of Claims 1-5, 8 and 16 as being anticipated by Holdren be withdrawn.

On page 5 of the Office Action, Examiner Tate rejected Claims 1-5, 7, 8, 16, and 17 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,948,677 to Huster et al. (hereinafter "Huster et al.") or U.K. Patent Application G.B. Patent No. 2,103,635 to Woodward (hereinafter "Woodward et al.").

Huster et al. is directed to a process for the recovery of starch from the cellular tissue of root crops. However, Huster et al. actually teach away from this invention. In Huster et al., the starch is actually found in the fiber fraction after the initial pressing. Therefore, additional steps must be taken to release the starch from the fiber fraction while discarding the liquid fraction. In the traditional method used in Huster et al., large amounts of high

grade component remain behind in the pressed material. In contrast, the presently claimed invention seeks to remove all possible nutrients (the entire cytosolic content of each plant cell) from the fiber fraction during the initial fiberization step, so that essentially all that remains is the cell wall of each cell.

Similarly, Woodward teaches away from the present invention, because Woodward leaves a substantial amount of nutrients, including the starch that it seeks to recover, in the fibrous fraction after the initial separation of the fiber fraction from the juice stream.

Thus, it is respectfully requested that the rejections of Claims 1-5, 7, 8, 16 and 17 as being anticipated by Huster et al or Woodward, be withdrawn.

On page 6 of the Office Action, Examiner Tate rejected Claims 1-5, 7,8, and 16 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,536,288 to Hultsch (hereinafter "Hultsch"), U.S. Patent No. 4,203,845 to Brouwer (hereinafter "Brouwer"), or Sugar Ind. Res. Inst. (SU 424881 - DWPI) (hereinafter "Sugar Ind. Abstract").

Hultsch merely teaches a pocket centrifuge and a method of operating same for the continuous separation of a filtrant into a solid and a filtrate. It does not teach or suggest the claimed method, which includes fiberizing vegetable material to substantially open all cell walls. Furthermore, as with Hultsch, Brouwer is only directed to an improved filter press and does not teach or suggest the fiberization step of the present invention. Similarly, the Sugar Ind. abstract is only directed to equipment and a method for extracting juice from crushed sugar beets, and does not teach or suggest the fiberizing step of the present invention.

Accordingly, it is respectfully requested that the rejections of Claims 1-5, 7, 8 and 16 as being anticipated by Hultsch, Brouwer or Sugar Ind. Abstract be withdrawn.

Rejections Under 35 U.S.C. § 103(a)

On page 7 of the Office Action, Examiner Tate rejected Claims 1-6, 8, 16-18 under 35

U.S.C. § 103(a) as being unpatentable over Holdren, in view of WO 9,713,402-DWPI Abstract by Folkerts et al. (hereinafter "Folkerts et al.") and/or the recognized state of the art.

It appears that Folkerts et al. was to relied upon to show that genetically modified vegetables are known in the art. However, as discussed above, there is no teaching or suggestion (in either Holdren or Folkerts et al.) of the fiberization step according the present invention. Thus, it is respectfully submitted that these references do not render this invention obvious.

As such, it is respectfully requested that the rejections of Claims 1-6, 8 and 16-18 as being obvious over Holdren, in view of Folkerts et al. be withdrawn.

On page 9 of the Office Action, Examiner Tate rejected Claims 1-8 and 16-18 under 35 U.S.C. §103(a) as being unpatentable over Huster et al., Woodward, Hultsch, Brouwer, and/or Sugar Ind. Abstract, in view of Folkerts et al. and/or the recognized state of the art.

As discussed more fully above, it is respectfully submitted that none of the cited references (i.e., Huster et al., Woodward, Hultsch, Brouwer, and Sugar Ind. Abstract) teach or suggest the claimed method, which includes the fiberization step. In fact, each of these references actually teach away from this invention, as already discussed above. Thus, Folkerts et al., when combined with these references would not render this invention obvious so as to be unpatentable under 35 U.S.C. §103(a).

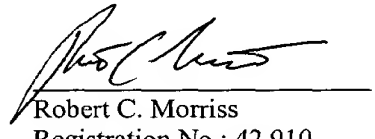
Thus, it is respectfully requested that the obviousness rejection of Claims 1-8 and 16-18 based on Huster et al., Woodward, Hultsch, Brouwer and Sugar Ind. Abstract, in view of Folkerts et al., be withdrawn.

CONCLUSION

Accordingly, Applicants respectfully submit that the application as amended, including Claims 1-8 and 16-18, is now in proper form for allowance, which action is

earnestly solicited. If the Examiner has any questions relating to this Amendment or to this application in general, it is respectfully requested that the Examiner contact the Applicants' undersigned attorney at the telephone number provided below.

Respectfully submitted,



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VERSION OF AMENDMENT WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend claim 1, 4 and 5 to read as follows:

1. (Twice Amended) A method for separating cytosolic and parenchyma components from vegetable material, said method comprising [at least partially] fiberizing said vegetable material to substantially open all cell walls and subsequently separating said [at least partially] fiberized material and into a fiber fraction, which comprises substantially all fibrous materials and cell walls [relatively firm tissue], and a juice stream, which comprises substantially all cytosolic materials and parenchyma [soft tissues].

4. (Twice Amended) A method according to claim 3, wherein the vegetable material is fiberized by means of a pulp or paper mill refiner.

5. (Twice Amended) A method according to claim 1, wherein the fiber fraction is separated from the juice stream by screening, centrifugation, processing by [hydro(cyclone)] cyclone, hydrocyclone, centriscreening, decanting, sedimentation, or combinations thereof.